

REVIEWS.

ART. XV.—*An Essay, Historical and Critical, on the Mechanism of Parturition.* By WILLIAM LEISHMAN, M. D., fellow of the Faculty of Physicians and Surgeons of Glasgow ; Fellow of the Obstetrical Society of London ; Lecturer on Medical Jurisprudence, Anderson's University, Glasgow. Printed at Glasgow, and published by John Churchill & Sons. London, 1864. 8vo. pp. 129.

THE subject of the natural mechanism of labour is so important, that we hail with pleasure every effort calculated to elucidate this process. In a modest octavo volume, the title of which we have prefixed, Dr. Leishman, whose attainments and position have greatly favoured his researches, has presented his views on several important points of practical obstetrics ; his object being to attract attention to the subject, and to excite an interest which may eventuate in establishing more correct principles for the guidance of the practitioner. We trust that he will persevere in this labour, and extend his investigations to all the various presentations and positions of the fœtus.

In his introduction, Dr. Leishman dwells on the importance of an accurate acquaintance with the mechanism of labour ; he considers it as “the keystone of the art of midwifery ;” he believes, however, that notwithstanding the numerous publications of the last few years, such knowledge is by no means general among the mass of practitioners. This deficiency he traces to a faulty mode of study, by means of dried bones and phantoms, rather than by patient observation of the whole process of parturition in the living being. It has been regarded more as a mechanical than as a physiological subject.

There is truth, no doubt, in the above criticism, but we do not hesitate to observe that the student who does not, in the first place, become familiar with all the peculiarities of the cranium of the fœtus and of the pelvis of the woman, and who does not completely understand the mechanism of labour as it may be demonstrated by means of the bones, and the assistance of manikins, can seldom, if ever, profit by his clinical experience. The foundation being well laid, the natural process can be advantageously examined ; accurate knowledge, however, of the intricate and wonderful physiology of parturition, is not easily obtained. It requires more than the careful observation of a few cases of labour—it demands constant and unwearied attention, not merely for months, but for years, and there are few practitioners, however mature their experience, who may not learn something of the mechanism of labour, whenever the case is in any degree protracted or difficult. The mechanism of labour is not yet fully developed.

The plan proposed by Dr. L. is to trace the history of the science of midwifery, and then to exhibit “the great mechanical laws which guide us in the practice of obstetric art.” His historical sketch is very creditable ; it manifests that full acquaintance with medical literature which distinguishes

our European brethren, and will prove, therefore, very interesting and beneficial to the reader. He considers the publication of the very valuable essay of M. Franz Carl Naëgelé, Professor at Heidelberg, on the mechanism of parturition, as constituting the great modern epoch in the history of obstetrics. This was translated by Dr. Edward Rigby, and published in England in 1829, and, according to Dr. L., received the almost unanimous support of British obstetricians. Dr. L. clearly intimates his opinion, that in Great Britain there has been very little advance in the science since this important event; for, although great attention has been paid to the subject of labour, and many valuable publications have issued from the press, yet owing, perhaps, to intrinsic difficulties, and to the obscure and indefinite descriptions given by writers, the whole subject has become more, instead of less intricate, and hence there is now great discrepancy in the opinions, and, of course, in the practice of obstetricians. Dr. L. hopes that he has, by careful clinical observation, contributed something to elucidate the mechanism of labour, with what success we shall endeavour to show, premising that in this present publication he confines himself to "cranial positions."

Dr. Leishman believes that one great difficulty in the advance of obstetric science is the indefinite use of words. Of the truth of this there can be no doubt. Unfortunately, however, we think that Dr. L. is by no means clear or precise in the use of his own expressions. The very heading of his third chapter may be cited as an exemplification. To a student, what idea is given by the expression, "The *head* in the first position?" Certainly the whole head is not meant. There is a distinction drawn between the face and the cranium, as one or the other descends first into the pelvis. So, also, there must be a necessary distinction whether the top or the base of the head presents, and Dr. L. well knows that there is an important practical difference whether the *os frontis*, *ossa parietalia*, or *os occipitis* appear first towards the centre of the *os uteri*. There can be no doubt that Dr. L. means by "the head in the first position," a presentation of the upper part of the head, as represented by the sagittal suture, and as observed in the most natural case of labour. This particular portion of the head is denominated the "vertex." This he describes, not as one point, but as extending from the anterior to the posterior fontanel, and from one parietal boss to the opposite. This would constitute an elliptical surface, the long diameter of which would be transverse, and the conjugate would be represented by the sagittal suture. This definition we consider most unfortunate, and has led our author far away from the truth in describing the mechanism of labour. Although the word "vertex" originally indicated the highest point of the head, yet in obstetric language it has been confined to the posterior portion of the top of the head, the region of the posterior fontanel, or, as regards the scalp, that portion where the "hair parts." It is this posterior portion which presents or descends first in natural labour; and the middle of the sagittal suture, which is generally felt at the commencement of labour is not the centre, as Dr. L. would represent, but the most anterior point of the circle which constitutes the "vertex." The greater the flexion, therefore, of the child's head, the nearer will the posterior fontanel approximate the centre of the pelvis, or *os uteri*, and hence the "short diameters" of the cranium are involved in every case of natural labour.

If, however, the upper part of the head be considered as the vertex, the head would not be flexed when this portion presents, and the long diameter

of the cranium, as represented by Dr. L. in his diagram—viz., the occipito-frontal—would be involved. Certainly it is a matter of necessity that a labour under these circumstances would be far more tedious and painful, *cæteris paribus*, than when the cervico-bregmatic or short diameter is concerned. What Dr. L. therefore calls a presentation of the vertex should be termed a presentation of the top of the head, or region of the anterior fontanel; not a natural or favourable presentation, but unnatural, and therefore unfavourable. Indeed, we might dismiss all that he has to say upon vertex presentations, as being foreign to the course of regular labour.

Again, as to the word "presentation," Dr. L. adopts as the best definition, although he regards it as a faulty one, that given by Dr. Tyler Smith, viz., "that portion of the fœtal head felt most prominently within the circle of the os uteri, the vagina, and the ostium vaginæ in the successive stages of labour." Perhaps Dr. L. is correct in considering this as preferable to any other definition given by European authors to the word "presentation," but certainly it is very incorrect. In the first place, the "circle of the os uteri" is very variable, as it is sometimes partially and sometimes completely dilated. It is frequently parallel to the brim of the pelvis; and not unfrequently it is altogether oblique—its plane being directed backwards, or sometimes forwards, occasionally to the right, or, it may be, to the left side of the pelvis. Then, as the head descends through the os uteri, the presentation, following the definition of Dr. Tyler Smith, would be continually varying: when high up, it would be the superior part of the right parietal bone; as it descends and rotates, it would be the right lambdoidal suture; then it would be the upper portion of the occipital bone; then the occipital protuberance; and finally, as the head passes the ostium vaginæ, it would be the sagittal suture. Nægelé's definition of "presentation" is equally faulty, as being that portion of the child's head felt on the introduction of the finger in the axis of the vagina, and which, we think, has been the cause of several erroneous deductions made by that distinguished obstetrician.

The proper definition of "presentation" is, that portion of the child's head which is towards the centre of the pelvis, or of the dilated vagina, in the different periods of labour. The centre of the pelvis and of the dilated vagina is represented by the axis of the obstetric canal, *i. e.*, by a line drawn perpendicularly through the centre of the superior strait, and through the successive planes of the pelvis, and of the vaginal canal, to its external orifice, as distended by the head *in transitu*.

The particular *point* of the surface of the head which corresponds to this axis must somewhat vary in almost every case of natural labour, as the head is in a state of less or greater flexion. Thus, at the commencement of labour, the middle part of the sagittal suture would be felt towards the centre; then, as the head is more flexed, it would be the posterior part of this suture. To be mathematically accurate, therefore, we must take the centre of the head, or that point within the cranium, at or near the intersection of the bi-parietal and cervico-bregmatic diameters, as that portion which always corresponds to the axis of the obstetric canal of the pelvis.

Dr. L. does not give us a definition of the word "position," which is unfortunate; although he continually speaks, in unison with all authors, of various "positions of the head" or cranium, yet he very frequently uses the word as synonymous with presentation, from which it is entirely distinct; thus he speaks of "four ordinary vertex presentations," evidently meaning

the four ordinary positions of a vertex presentation, as a presentation may be unvarying from the beginning to the end of labour, while a position may be constantly changing during this process. Cases are upon record where the child's head has rotated not merely to the extent of a semicircle, but even of a whole circle, in its passage through the pelvis.

Again, our author seems to be at a loss to determine when the head has passed through the brim of the pelvis, or what is meant by the expression "at the brim." We agree with him that this is a very important point, but we cannot perceive that he has elucidated this subject by stating that the head is "'at the brim' until its bulk has passed this part, which does not take place until the head has begun to experience some resistance from the floor or converging walls of the pelvic cavity." Hence, he says, the vertex passes first, then the bi-parietal diameter, and then the occipito-frontal diameter. All this is inaccurate; the occipito-frontal diameter, in a natural labour, is not concerned; flexion occurs, and it is the cervico-bregmatic and bi-parietal diameters that are involved, and it requires no extended observation to perceive that the resistance to the descent of the head is at the parietal protuberances; that when they pass any particular line or plane of the obstetric canal, the head, in a mechanical point of view, has also passed. As soon, therefore, as the parietal protuberances are free from the os uteri, or from the margin of the superior strait, the cranium has virtually passed through the brim, and this, in opposition to the author's opinions, is accomplished long before the top of the head reaches the floor of the pelvis. Hence, when the bi-parietal diameter is beyond the rami of the ischia, the head is out of the pelvis, although the face may still be within the cavity; and hence, also, when the orifice of the vagina has been sufficiently dilated to permit the escape of the parietal protuberances, the head is in reality delivered, the forehead and face passing out with great rapidity.

The head enters the superior strait, very universally, *obliquely*. Our author notices three kinds of obliquity. Since the time of Ould and Solayres the obliquity of the head, as regards its antero-posterior diameters, has, with few exceptions, been adopted as a fundamental truth by obstetricians. Of course there are many exceptions to this proposition, the head not unfrequently being transverse, and occasionally the occiput is at the pubis, and the os frontis at the sacrum. Some have regarded the transverse position as the most frequent; and some, indeed very many, consider it as constituting an important variety of cranial positions. Practically, however, it is of very minor importance, as Baudelocque, Velpeau, Naëgelé, &c., have fully established the fact that such transverse positions are, with few exceptions, converted into oblique positions.

The second variety of obliquity is that of the bi-parietal diameter. This has been urgently insisted upon by Prof. Naëgelé as a fundamental truth of practical importance. His admirers have adopted and tenaciously maintained this opinion, so that it has become the prevalent theory of modern obstetricians. We are happy to find, however, that Dr. Leishman joins Velpeau, Cazeaux, Matthews Duncan, West, and Patterson in opposition to this new dogma. He opposes it as it countenances the idea that the brim of the pelvis is horizontal, instead of being at an angle of sixty degrees; also, that if this bi-parietal obliquity existed, the ear of the child could be readily felt near the pubis at the commencement of labour, as the right parietal boss is first recognized, according to Naëgelé, by the finger on its introduction into the cavity of the pelvis, and therefore M. Naëgelé

considers this the lowest part of the head; but this is incorrect, as the ear cannot be reached without great difficulty.

M. Naëgelé maintains that the sagittal suture divides the dilated os uteri unequally, the smaller segment being posterior, and that frequently the os is inclined backwards. Both these propositions are denied by Dr. L., who asserts that the os uteri occupies generally the centre of the brim, and that the sagittal suture traverses the middle of the pelvis, and is directly opposed to the last bone of the sacrum. This latter remark he has proved by various experiments, especially by introducing the short arm of a rectangular sound into the cavity of the vagina, so that the angle of the sound shall be at the coccyx, when it will be found that the extremity of the short arm, carried to the middle of the pelvis, will be opposed to the sagittal suture.

We fully coincide with the criticism of Dr. L. as to the lateral obliquity of the head. We have never believed nor taught it, being fully satisfied, by constant observation, that the sagittal suture is opposed to the coccygeal region, or proper floor of the pelvis. The real cause, we believe, of the mistake so universally made upon this subject arises from the faulty definition of the word "presentation," as being that part of the head which is felt nearest to the os vaginæ, instead of that part which is at the centre of the superior strait, at the commencement of labour, and is opposed to the coccyx. Another and a very important source of error made by obstetricians is to regard the arch of the pubis as the bottom of the pelvis, instead of being situated at its anterior portion, the bottom or floor being at the coccyx. Did time and space permit, this subject might be argued *in extenso*; but it will be sufficient to observe at present that the right parietal boss, which in a transverse, and even in an oblique, position of the head can be so readily felt near the os vaginæ, has to descend, during the progress of labour, to the tuber of the ischium before the head can pass out of the pelvis through the inferior strait.

Another argument of M. Naëgelé, in favour of this lateral obliquity, is the usual position of the *caput succedaneum* upon the superior and posterior portion of the right parietal bone. Dr. L. feels the strength of this argument, but would sanction the explanation of Dr. Matthews Duncan, who says that the position of the tumour is not dependent simply upon the os uteri, but also on the resistance of the vagina; which being greater posteriorly than anteriorly, prevents any swelling over the left parietal bone, and determines it towards the right, where the resistance at the orifice of the vagina is trifling. There is much truth in this observation of Dr. Duncan, but it is by no means the whole truth. We believe that the *caput succedaneum* on the right parietal bone is never formed, *exceptio probat regulam*, at the os uteri, but always after the head has entered the pelvis, and is driven strongly against the arch of the pubis, and before rotation is perfected. It is under these circumstances that the scalp over the posterior superior angle of the parietal bone, being opposed to the os vaginæ, and therefore unsupported by the soft or bony tissues, is distended by watery or bloody effusions between it and the bone, sometimes to an enormous degree. It is very incorrect, however, to call this, we think, the presenting part, for rotation is not yet complete, and delivery does not occur until the parietal protuberances have approximated the tubers of the ischia, and the occipital protuberance appears under the arch. The real presenting part, or that which is towards the centre of the inferior strait, at this time, is the poste-

rior extremity of the sagittal suture. If this view be correct, no argument whatever can be drawn, as to the lateral obliquity of the head at the brim, from the location of this *caput succedaneum*.

Nevertheless, in cases of unyielding *os uteri*, a *caput succedaneum* is formed at the *os uteri*, but not located over the right side of the parietal bone, but over the sagittal suture and the superior part of the occiput. In this observation we are confirmed by M. Cazeaux, and, if correct, it is in direct opposition to the teachings of the German professor, and fully confirms the opinion that there is a parallelism between the cervico-bregmatic circumference of the head and the plane of the superior strait of the pelvis.

The third obliquity noticed by Dr. Leishman is that of the occipito-frontal diameter, indicating flexion of the head. He acknowledges that this "almost invariably takes place," although it varies exceedingly in different labours, the flexion being very great when the head is large, or when there is a contraction of the superior strait, and often very slight when the head is small, or the pelvis large. All this is true, but there is another cause, not noticed by Dr. L., why the flexion of the head ensues in almost every case of labour, viz., the resistance of the *os uteri*. It is at this orifice that flexion occurs, the degree of which is in proportion to the tonicity of its tissues. Hence, however large may be the pelvis, if the *os* be at all rigid, flexion may be great, and in practice we generally find that great flexion exists, even where the head is small, as the *os uteri* seldom dilates more than is absolutely necessary for the transit of the cranium. Now it seems strange that Dr. L., who, in the first part of his essay, contends that the vertex first passes, and then the bi-parietal diameter, and then the occipito-frontal, does not perceive the incongruity of this proposition, with the statement that this flexion "almost invariably takes place." The slightest demonstration clearly indicates that just in proportion as flexion occurs, the occipito-frontal diameter loses its parallelism with the oblique diameter of the brim, and that where flexion is perfect, it is the cervico, or sub-occipital bregmatic diameter which corresponds to the oblique diameter of the brim. This is a fact so easily demonstrated, and has been so long taught by such men as Solayres, Baudelocque, Velpeau, Cazeaux, Dewees, &c. &c., that we must again express our surprise that Dr. L. should speak of the occipito-frontal diameter as coming down parallel to the brim in ordinary cases of vertex presentations.

Dr. L. has very correctly insisted that, in studying the mechanism of labour, a distinction should be drawn between the first and the second part of this process; that during the first portion the head descends in the direction of the axis of the brim, until it reaches the floor of the pelvis, and then it passes in the direction of the axis of the outlet. As soon, therefore, as the head has descended to the bottom of the pelvis, other important and interesting changes ensue.

The first of these noticed by Dr. L. is the process of rotation, the occiput describing a spiral line from the left towards the right anteriorly in its passage. The cause of this rotation has been explained by Dr. Tyler Smith, not to us in a very satisfactory manner; but, no doubt, as Dr. L. observes, more nearly approximating the truth than that given by any British accoucheur. Dr. Smith refers it to the approximation of the spines, and the inclination inwards of the planes of the ischia. This statement is correct, as far as it goes; but it is the approximation of the sides of the pelvis anteriorly, and also the continuation of this double inclination by

the soft tissues closing the outlet of the pelvis, which insures, as a mechanical necessity, the rotation of the head during its descent. It has been seriously agitated, particularly by M. Cazeaux, whether the rotation is not effected entirely by the soft parts, without any influence from the bones of the pelvis. This we deem incorrect, but regard both as essential, for the perfection of rotation.

Is this rotation perfect? M. Naëgelé maintains the negative, and is supported by his innumerable followers, including our author. They all insist that the head passes obliquely as regards its bi-parietal diameter, not merely at the inferior strait, but also at the vulva; the right parietal protuberance being delivered first. Dr. Leishman even affirms, that if a cord be extended along the median line from the coccyx to the symphysis pubis, during the transit of the head, and a mark made upon the child's head corresponding to this line, it will be found passing over the right branch of the lambdoidal suture towards the left branch of the coronal.

This demonstration seems at first sight very conclusive, especially to the inexperienced; but let it be remarked that the practitioner must have embraced a quiescent moment, "during the absence of pain," to extend his line, and make his mark upon the scalp of the child. But it is well known that, owing to the resiliency of the tissues, the child's head retraces its course as soon as the bearing-down effort is suspended. Hence, if the head were "direct" during a pain, it would become oblique as soon as the pain ceased. If, therefore, Dr. L. had thrown aside his string, and passed his finger into the rectum during the height of a pain, and then traced the course of the sagittal suture, we think that he would have found it running very nearly, if not exactly, on the median line, corresponding to the raphè of the perineum. A little attention, moreover, would indicate that the parietal protuberances correspond, simultaneously, to the tubers of the ischia on either side, and subsequently, to the margins of the orifice of the vagina; in other words, that the occipito-bregmatic plane passes through the inferior strait, and through the ostium vaginæ, parallel to the planes of these openings. This observation is restricted to those cases where the head and pelvis are of their usual relative size; and where there is considerable resistance from the tissues of the perineum, as observed in primiparous patients. Of course, if the head be small relatively, or there be great relaxation of the soft parts, it will very often be delivered in the oblique manner contended for by M. Naëgelé; it passes so quickly, that there is no time, as it were, for the completion of its changes. The relaxation of the tissues not only renders complete rotation unnecessary, but removes one of the accessory causes of such rotation.

As to the propriety of "*supporting the perineum*," Dr. L., after a learned allusion to the history of the practice, and its almost universal adoption by the best practitioners in Europe and America, boldly ventures to term it a "barbarous relic of meddlesome midwifery." How a gentleman, who urgently recommends the study of the mechanism of labour, not only in the lecture-room, but at the bedside, and who seems to be well versed in the laws of mechanics, can declare that the supporting of the perineum is not only useless but injurious, is, to us, a matter of great surprise. We cannot enter upon the question at present, but merely observe that, while we agree with our author that much mischief has resulted from the ill-timed and unscientific, not to say violent pressure upon the perineum, nevertheless the rule to "support the perineum" is one defensible, we believe, on every

principle connected with the physiology and the mechanics involved in the process of labour at its termination.

"*The other cranial positions*," or, as we should express it, the other positions of the vertex, omitting the fifth and sixth of Baudelocque, are then examined.

As to the *frequency* of the right occipito-anterior, as compared with the left occipito-anterior, and especially with the right occipito-posterior, great discussions have taken place, as we should think, to very little purpose: the practitioner who understands the mechanism of labour need not trouble himself as to the relative number of cases of any particular presentation or position that we meet with in practice; he is prepared for any emergency. We have no faith either in hospital reports of the various positions which the head may assume at the very commencement of labour. Diagnosis, under these circumstances, is too difficult, in many instances, even to the experienced accoucheur, and certainly to the tyros of the profession by whom hospital reports are usually prepared, to permit us to give much credence to the statements presented by the "internes" of obstetric institutions. The difficulty becomes greater as few attempts are made to establish a diagnosis, as M. Naëgelé himself observes, until the head has descended through the brim. Dr. Leishman believes that M. Naëgelé is rather extravagant in his declaration of the comparative infrequency of the right anterior and left posterior positions of the vertex, as compared with the left anterior and right posterior positions. Our author would state the proportion of 67 per cent. for the left anterior, about $9\frac{1}{2}$ per cent. for the right anterior, 21 per cent. for the right posterior, and $2\frac{1}{2}$ per cent. for the left posterior positions. Our experience would greatly increase the number of the right anterior, and especially of the left posterior, or second and fourth of Naëgelé (second and fifth of Baudelocque).

As to the disposition of the occiput to rotate forward, in the occipito-posterior positions, the whole profession is much indebted to M. Naëgelé for establishing the fact by careful clinical observation, that this anterior rotation will generally spontaneously occur. This disposition, according to M. Naëgelé's report, is in the proportion of thirty-one to one; our author would place it at twenty-four to one. The knowledge of this predisposition is of great importance in the first place to diminish the anxiety of the practitioner in all these occipito-posterior positions, and also to encourage him to assist in the accomplishment of this natural predisposition, so as to prevent, *in all cases*, the posterior rotation of the occiput, which all acknowledge as sometimes occurring, and which is always unfortunate.

Why the head should rotate forward, in these positions, is not explained. Dr. Tyler Smith makes the determining cause the spines of the ischia. Dr. Leishman indorses Simpson and Cazeaux in the opinion that too much importance has been given to the spines of the ischia, and that the anterior rotation is dependent upon the resistance of the soft parts, against which the head is forcibly impinged by the contractions of the uterus. Whatever truth there may be in this assertion there is still no explanation given why the occiput sometimes rotates backwards. We think that it is the spines of the ischia, and the perpendicular line through their extremities which constitute the demarcation between the posterior and anterior inclined planes. If, therefore, the occiput in its descent strikes posteriorly to the spine of the ischium, it is depressed towards the great sacro-sciatic foramen and the sacro-sciatic ligaments, at such an angle, that it will be determined posteriorly.

As to the "torsion of the neck," which is usually described by authors as taking place during the rotatory motion of the head, our author embraces the opinion of M. Gerdy, that no such twisting of the neck occurs, maintaining that the shoulders rotate whenever the head rotates. This we consider altogether erroneous; there are exceptions, but nature's rule is that the shoulders remain oblique when the head rotates, hence necessitating the "*restitution*" of the head after its delivery.

In posterior positions of the occiput, when the head approximates the outlet, we cannot agree with the author, who declares that the bearing down efforts of the mother are "chiefly directed" towards the anterior part of the occipito-frontal diameter. They are directed, in this instance, as well as in all other true vertex presentations towards the posterior part of this diameter, through the medium of the spine. This fact is of great practical importance.

Our author also declares that in these same cases, the forehead gets "*under*" the arch of the pubis. This is often true when the head is comparatively small, or the perineum greatly relaxed; but on ordinary occasions Baudelocque is far more correct in stating that the os frontis is *behind* the pubis; and, indeed, during the process of delivery often remounts still higher until the occiput is delivered over the fourchette. This fact has also an important practical bearing.

Again, Dr. L. notices the fact that, in these occipito-posterior positions of the vertex, there may be a conversion into a face presentation, but well observes that this is very rare. The fact, however, should be remembered by the scientific practitioner.

Dr. Leishman calls attention to Dr. West's division into "bregmato-cotyloid and fronto-cotyloid positions" of the cranium; although not approving of the division, yet he asserts that it is of practical importance, as, in the first case, rotation, he says, of the occiput will be forward, and in the second, backward. We think an important error has here been committed, owing to the adoption of but one presentation of the cranium, recommended by Naëgelé; for the truth is that the bregmato-cotyloid position implies a presentation of the vertex, or region of the posterior fontanel, while the fronto-cotyloid position implies a presentation of the sinciput, or of the region of the anterior fontanel. These are, therefore, different "presentations," and not different "positions" of the same presentation. In the "bregmato-cotyloid position" the cervico-bregmatic diameter is concerned, but in the "fronto-cotyloid position" the occipito-frontal, constituting, therefore, a radical difference between the two cases. In the latter, the practitioner should always render assistance; neither the woman nor the child can be regarded as safe without such assistance being rendered; while, in the former, the natural processes may be, and usually are, sufficient; although, even here, the instructed practitioner will remember that the occiput will occasionally rotate posteriorly, which should be prevented.

In all the posterior positions of the vertex, should the process of rectification, *i. e.*, of rotation of the occiput forward, be left to nature, or should art interfere? M. Naëgelé and his admirers are disposed to trust such cases to the natural efforts. Hence we find that M. Naëgelé says that in ninety-six of his cases, three rotated posteriorly, or one in thirty-two. Simpson and others report one in twenty-five. Now as all acknowledge that the posterior rotation is attended with danger to the child, and not

unfrequently to the mother, we frankly avow that such rotation should never be allowed, and, as far as our experience goes, can always be prevented.

But the question when and how to operate has not been definitely settled. Dr. Leishman suggests that the "long, straight forceps" may be, in some instances, applied cautiously when the head is still movable above the brim, to affect this change; but acknowledges that he and some of his friends have generally failed in the attempt. We can perceive no justification, under any circumstances whatever, for this use of the forceps, straight or curved, when the head is movable or when it is oblique. The operation itself is difficult, and will frequently prove impracticable, and must always be dangerous to the child and to the tissues of the parent. It is contrary also to the fundamental principle inculcated by Naëgelé, that the occiput will almost invariably rotate forward, without any operation whatever; and also that it is impossible to determine whether the obliquity of the head, observed thus early in labour, will not speedily disappear.

Our author advises that the attempt at rectification should not be made, as a general rule, until the head reaches the floor of the pelvis. We think this rule requires some modification, as we have no doubt that the means of rectification should be employed immediately after the head has escaped through the os uteri, whether it be high or low in the pelvis; in other words, as soon as there is a natural disposition to rotation, caused by the anterior inclined planes of the pelvis; moreover, such efforts should be carefully persevered in until rotation be perfect.

As to the "means of rectification," the fingers will very generally answer. Our author quotes Dr. Meigs as recommending pressure upon the posterior margin of the parietal bone, and Dr. West as acting behind the ear, so as to cause the face to ascend and rotate backward. Why such advice should be indorsed by Dr. Leishman, in preference to that recommended more than eighty years ago by Baudelocque, and sanctioned early in this century by Dr. Dewees, of making pressure on the anterior and lateral part of the os frontis, is to us inexplicable. This last mode has the advantage of directing the force on the long arm of the lever, represented by the head, which renders it very efficient, and has been for so many years successfully employed by the disciples of the two distinguished teachers we have mentioned, that we thought its superiority would not have been impugned. In our own practice we have always succeeded, unless there was some unusual complication, from the relative size of the head, the rigidity of the tissues, etc.

When such complications exist, we are happy to find that Dr. West has recommended the vectis, and our author has given his influence in favour of this instrument. For some thirty years we have invariably employed the vectis in all these persistent occipito-posterior oblique positions, and we are happy to add that in no instance within our recollection have we failed in causing an anterior rotation of the occiput, either by the fingers or the vectis. Hence we never resort to the forceps in such cases, and consider their application as very difficult, injurious, and often impracticable.

We have been induced to make the above criticisms of Dr. Leishman's views on the mechanism of parturition in no captious spirit, but with a sincere desire to discern truth and to correct error on this all-important subject, and thus to contribute something at least towards the improvement of the science, and hence of the practice of obstetrics. We feel persuaded that many of the opinions of Professor Naëgelé have been too hastily adopted, and

that his simplification of the presentations of the cranium, so far from being useful, has been productive of great mischief, both theoretically and practically. We trust, therefore, that the talents, industry, and zeal which Dr. L. has so clearly manifested in his pursuit of knowledge will have their legitimate and full reward; and that he, with many co-labourers, will make a complete revision of the mechanism of labour, and thus establish better principles for the guidance of the practitioner. H. L. H.

ART. XVI.—*Gunshot Wounds and other Injuries of Nerves.* By S. WEIR MITCHELL, M. D., GEORGE R. MOREHOUSE, M. D., and WILLIAM W. KEEN, M. D., Acting Assistant Surgeons U. S. A., &c. 12mo. pp. 164. Philadelphia: J. B. Lippincott & Co., 1864.

Reflex Paralysis. Circular No. 6, Surgeon-General's office, March 10th, 1864. By A. A. Surgeons S. W. MITCHELL, G. R. MOREHOUSE, and W. W. KEEN, U. S. A. pp. 17.

Lectures on the Physiology and Pathology of the Nervous System. By C. E. BROWN-SÉQUARD, M. D., F. R. S., Fellow of the Royal College of Physicians of London, &c. &c. Philadelphia: J. B. Lippincott & Co., 1860.

Clinical Observations on Functional Nervous Disorders. By C. HAND-FIELD JONES, M. B., &c. pp. 585. London: 1864.

ONE of the many important improvements introduced into the Medical Department of the United States army during the Surgeon-Generalship of Dr. Wm. A. Hammond, was the establishment of a number of special hospitals, for the treatment of certain classes of cases. Not only has the particular experience and skill thus acquired proved beneficial to the patients under care, but science has profited by the concentrated and prolonged observation of facts thus made possible; facts, many of which might otherwise have been lost for want of comparison and record.

Diseases and injuries affecting the nervous system are especially worthy of such specialization, because of their importance, and of the rarity with which lesions of the nerves have been made the subjects of clinical study. The great text-books of Military Surgery refer but briefly to injuries of the nerves; none, in the English language, at least, giving any systematic account of them, or dealing satisfactorily with their treatment.

The authors of the two *brochures* whose titles are placed first above, have made industrious use of the opportunities afforded them. The special labours and studies of whose results they give account, began in May, 1863; and embrace the history of about one hundred and twenty cases, all of whose details had been carefully reported in the note-books of the hospital. The topics dwelt upon are, chiefly, wounds of nerve centres, wounds of nerve trunks, or their branches, and the resulting alterations in nutrition, sensation, motion, calorification, &c., and the treatment of nerve lesions.

Unfortunately, it is often impossible to determine exactly the amount of injury sustained by a nerve or nerves. The nerve whose distribution finally remains affected, must be inferred to be the one principally involved in a